

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 21, 27, 29, and 91**

[Docket No. FAA-98-4390; Notice No. 98-12] — 1

RIN 2120-AG53

Flight Plan Requirements for Helicopter Operations Under Instrument Flight Rules**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to amend the general operating rules pertaining to flight plan requirements for flight by helicopters under instrument flight rules (IFR) by revising the alternate airport weather planning requirements, the weather minima necessary to designate an airport as an alternate on an IFR flight plan, and the fuel requirements for helicopter flight in IFR conditions. This proposed rule is needed because current rules discourage helicopter operations under instrument flight rules in marginal weather conditions. This proposed rule would increase safety by allowing helicopter operators access into the IFR system commensurate with the unique flight characteristics of helicopters.

DATES: Comments must be received on or before October 2, 1998.

ADDRESSES: Comments on this proposed rulemaking may be delivered or mailed, in duplicate, to: U.S. Department of Transportation Dockets, Docket No. FAA-98-4390, 400 Seventh St., SW, Rm. Plaza 401, Washington, DC 20590. Comments may also be sent electronically to the following internet address: 9-NPRM-CMTS@faa.dot.gov. Comments may be filed and/or examined in Room Plaza 401 between 10 a.m. and 5 p.m. weekdays, except federal holidays.

FOR FURTHER INFORMATION CONTACT: William H. Wallace, General Aviation Commercial Division (AFS-804), Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591; telephone (202) 267-3771.

SUPPLEMENTARY INFORMATION:**Comments Invited**

Interested persons are invited to participate in this rulemaking by submitting such written data, views, or arguments as they may desire. Comments relating to the environmental, energy, economic,

federalism, or economic impact that might result from adopting the proposals in this notice are also invited. Comments must identify the regulatory docket or notice number and be submitted in duplicate to the Rules Docket address specified above.

All comments received, as well as a report summarizing each substantive public contact with FAA personnel on this rulemaking, will be filed in the docket. The docket is available for public inspection both before and after the comment closing date.

All comments received on or before the closing date will be considered by the Administrator before taking action on this proposed rulemaking. Late-filed comments will be considered to the extent practicable. The proposals contained in this notice may be changed in light of the comments received.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include a self-addressed, stamped postcard with those comments on which the following statement is made: "Comments to Docket No. 98-4390."

The postcard will be date stamped and mailed to the commenter.

Availability of the NPRM

An electronic copy of this document may be downloaded using a modem and suitable communications software from the FAA regulations section of the Fedworld electronic bulletin board service (telephone: 202-321-3339), the Government Printing Office's electronic bulletin board service (telephone: 202-512-1661), or the FAA's Aviation Rulemaking Advisory Committee Bulletin Board service (telephone: 800-FAA-ARAC).

Internet users may reach the FAA's web page at <http://www.faa.gov/avr/arm/nprm/nprm.htm> or the Government Printing Office's webpage at <http://www.access.gpo.gov/nara> for access to recently published rulemaking documents.

Any person may obtain a copy of this NPRM by mail by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue, SW, Washington, DC 20591, or by calling (202) 267-9677. Communications must identify the notice number of this NPRM.

Persons interested in being placed on the mailing list for future NPRM's should request from the FAA's Office of Rulemaking a copy of Advisory Circular No. 11-2A, Notice of Proposed Rulemaking Distribution System, that describes the application procedure.

I. Background**Unique IFR Flight Capabilities of Helicopters**

The current IFR flight plan filing rules were issued to provide safe landing weather minima in IFR conditions for airplanes operating under IFR. Apart from the distinction in § 91.167 concerning the amount of fuel a helicopter must carry versus the fuel an airplane must carry, flight planning requirements, including alternate airport weather minima, are the same for airplanes and helicopters even though the operating characteristics of these aircraft are quite different.

Helicopters fly shorter distances at slower speeds than large airplanes, and generally remain in the air for shorter periods between landings. Therefore, a helicopter is less likely to fly into unanticipated, unknown or unforecast weather. The relatively short duration of the typical helicopter flight leg means that the departure weather and the helicopter's destination weather are likely to be within the same weather system.

Current Helicopter Instrument Flight Rules

Section 91.169 of title 14 of the Code of Federal Regulations (CFR) requires that, unless otherwise authorized by air traffic control (ATC), each person filing an instrument flight rule (IFR) flight plan must include, among other things, an alternate airport designation, unless the exceptions in § 91.169 (b) are met. These exceptions specify that a person need not designate an alternate airport on an IFR flight plan if 14 CFR part 97 prescribes a standard instrument approach procedure for the first airport of intended landing and, for at least 1 hour before and 1 hour after the estimated time of arrival at that airport, weather reports or forecasts indicate that the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

In addition, § 91.169 (c)(1) states that unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless the current weather forecast indicates that, at the estimated time of arrival at the alternate airport, the ceiling and visibility will be at or above the following weather minima: At airports for which an instrument approach procedure has been published in 14 CFR part 97, the alternate minima specified in that procedure or, if none are specified, for precision approach procedures, a ceiling of 600 feet and visibility of 2 statute miles; for nonprecision approach procedures, a

ceiling of 800 feet and visibility of 2 statute miles. Section 91.169 (c) (2) states that if no instrument approach procedure for the alternate airport has been published in 14 CFR part 97, the ceiling and visibility minima are those that allow descent from the minimum enroute altitude (MEA), approach, and landing under basic VFR.

In addition, to fly under IFR conditions, a person operating a civil aircraft must comply with the IFR fuel requirements of § 91.167. Section 91.167 requires that an aircraft must carry enough fuel (considering weather reports and forecasts and weather conditions) to—(1) complete the flight to the first airport of intended landing, (2) fly from that airport to the alternate airport, and (3) fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

Section 91.167 (b) specifies that the requirement to have sufficient fuel to fly to the alternate airport does not apply if 14 CFR part 97 prescribes a standard instrument approach procedure for the first airport of intended landing and, for at least 1 hour before and 1 hour after the estimated time of arrival at that airport, weather reports or forecasts indicate that the ceiling will be 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

Helicopter Visual Flight Rules

In contrast to IFR flight minima, a helicopter operator may fly VFR in Class G airspace clear of clouds if flying at a speed that allows the pilot adequate opportunity to see any air traffic or obstruction in time to avoid a collision. (14 CFR 91.155 (b)(1)). In Classes C and D airspace, and in Class E airspace below 10,000 feet mean sea level (MSL), VFR flight is not permitted in an aircraft, including a helicopter, when the flight visibility is less than three statute miles and the distance from the clouds is less than 500 feet below, 1,000 feet above, or 2,000 feet horizontal (14 CFR 91.155 (a)). In Class B airspace, VFR flight is permitted where a helicopter is clear of clouds with three-mile flight visibility. Section 91.157—*Special VFR Weather Minimums*, allows special VFR operations under other weather minima and requirements than those allowed by § 91.155. As a result, a helicopter may operate under VFR in weather conditions that would otherwise preclude the operator from filing an IFR flight plan under § 91.169 because the alternate weather minima criteria cannot be met. Often, IFR-equipped and certified helicopters are safely flown by IFR-rated pilots under VFR in weather that might be

characterized as marginal VFR.

Although such operations are permitted, the FAA would prefer to make the benefits of IFR operation available to helicopters that would otherwise fly in marginal VFR conditions. Therefore, the FAA is proposing to revise the weather minima for the designation of alternate airports to allow helicopter operators to take advantage of the IFR system. In addition, the FAA is proposing to revise the fuel reserve requirements for helicopter flight into IFR conditions.

The FAA is proposing to change the weather criteria in § 91.167(b)(2) for determining whether a helicopter operating in IFR conditions must carry enough fuel to fly from the first airport of intended landing to an alternate airport. Currently, additional fuel to fly to an alternate airport need not be carried if part 97 prescribes a standard instrument approach and if, for at least one hour before and one hour after the estimated time of arrival, the ceiling is at least 2,000 feet above airport elevation and the visibility is at least 3 statute miles. Under proposed § 91.167(b)(2), a helicopter operator would not have to carry additional fuel to fly from the first airport of intended landing to an alternate airport if—(1) part 97 prescribes a standard instrument approach procedure for that airport; (2) weather reports or forecasts, or any combination of them, indicate that, at the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling would be at least 1,000 feet above the airport elevation, or 400 feet above the lowest approach minima; and (3) the visibility would be at least 2 statute miles. Thus, the proposed rewrite of § 91.167 would change the existing requirements for helicopter operations in two ways. First, it would eliminate the current requirement that weather reports or forecasts indicate that certain weather minima exist for at least 1 hour before the estimated time of arrival. Second, although the FAA proposes to retain a requirement that weather forecasts or reports indicate that certain weather minima exist at the estimated time of arrival and for 1 hour after the estimated time of arrival, those ceiling and visibility minima would be reduced.

Under § 91.169 (b)(2), the FAA is proposing to change the existing requirement that each person filing an IFR flight plan must include an alternate airport unless part 97 prescribes ceiling and visibility reports for at least 1 hour before and 1 hour after the estimated time of arrival. The proposal would eliminate the current requirement that weather reports or forecasts indicate that certain weather minima exist for at

least 1 hour before the estimated time of arrival. The proposal would also reduce the requirements that the ceiling be at least 2,000 feet above airport elevation with visibility at least 3 statute miles to requirements for a ceiling of 1,000 feet above airport elevation, or 400 feet above the lowest approach minima (whichever is higher), with visibility at least 2 statute miles.

As to situations involving flight to airports for which an instrument approach procedure has been published for part 97, the proposed rule would revise § 91.169 (c)(1) to reduce the alternate airport weather minima for helicopter flight plan filing purposes as follows: (1) for precision approaches, ceiling 400 feet and visibility of 1 statute mile, but never lower than the approach to be flown, and (2) for non-precision approaches, ceiling of 600 feet and visibility 1 statute mile, but never lower than the approach to be flown.

Safety Benefits of IFR Operation

Aircraft operating under IFR are part of the national IFR system, which includes the air traffic monitoring and control structure. This system assures that both pilots and air traffic controllers know where the aircraft is and can work together to avoid hazards and complete the flight safely. In addition, immediate assistance is available in the event of an emergency. Accident data collected by the National Transportation Safety Board (NTSB) shows that weather-related accidents occur far more frequently under VFR than IFR. Between 1987 and 1996, a total of 275 weather-related helicopter accidents occurred, 202 during flights for which no VFR flight plan had been filed, and 68 during flights for which a VFR flight plan had been filed. During this same period, only five weather-related helicopter accidents occurred during flights for which an IFR plan had been filed. The NTSB data strongly suggest that helicopter flights conducted under IFR are less likely to have weather-related accidents than helicopter flights conducted under VFR flight plans or those conducted without a flight plan.

In 1988, the NTSB published a report, entitled "Commercial Emergency Medical Service Helicopter Operations," which was initiated because the accident rate for EMS operations was twice the rate experienced by part 135 on-demand helicopter operations and one and one-half times the rate for all turbine-powered helicopters. The NTSB determined that marginal weather and inadvertent flight into instrument meteorological conditions (IMC) were

the most serious hazards that EMS helicopters encounter. The report states:

The Board believes that although the IFR system is not designed optimally for IFR helicopters and that the nature of the EMS helicopter mission further complicates this problem, the safety advantages offered by IFR helicopters flown by current and proficient pilots are great enough that EMS programs should seriously consider obtaining this capability.

The NTSB also made the following observations:

Due to their speed and endurance, fixed-wing aircraft can fly to their destination, fly another 100 miles to an alternate airport, and then fly 45 minutes at cruise with little difficulty—the capability called for by the IFR alternate airport requirements. A helicopter, however, would have difficulty meeting these requirements; it is a relatively slow aircraft with limited endurance due to its high fuel consumption. Thus, the IFR alternate airport requirements are one major reason why many EMS helicopter programs are reluctant to invest in IFR-capable aircraft and pilots.

The Safety Board believes there is merit in the argument that the current alternate airport requirements, while appropriate for airplanes, are overly restrictive for helicopters; in the case of EMS helicopters, the restrictions coupled with the lower VFR minimums applicable to these operations, result mainly in discouraging the wider use of IFR-capable helicopters.

Thus, the FAA believes that lowering the alternate airport weather minima for IFR filing purposes will encourage helicopter operators to use the IFR system and reduce the number of weather-related, VFR accidents.

Anticipated Secondary Benefits of IFR Operation

In addition to the safety benefits discussed above, this proposed rulemaking is expected to result in certain environmental and economic benefits. Environmental benefits may result because IFR flights generally are conducted at higher altitudes and therefore create less overflight sound than VFR helicopter flights in marginal weather conditions. Similarly, enhancing helicopter access to the IFR system is expected to result in increased utilization of existing IFR-certified and equipped helicopters, thereby yielding economic benefits in terms of greater returns on investment, and more efficient use of equipment, time and other resources. Economic costs and benefits are discussed below under "Economic Evaluation Summary."

History of This Rulemaking

Over the past 15 years, there have been specific recommendations from industry, and from joint efforts of the FAA and industry regarding regulatory

changes to safely expand helicopter access to the IFR system. The FAA has been addressing these recommendations by working with industry to identify regulations that prevent safe helicopter operations in the IFR environment.

In 1975, the FAA issued Special Federal Aviation Regulation (SFAR) No. 29, which authorizes the Administrator to approve the carriage in IFR operations of less than the 45 minutes, but not less than the 30 minutes, of additional fuel reserve required by § 91.23 (c) (now § 91.167(a)(3)) and to issue approvals for limited IFR operations for certain transport category rotorcraft that are certified to only operate under VFR. In 1979, the FAA undertook the Rotorcraft Regulatory Review Program (44 FR 3250; Jan. 15, 1979), which was a comprehensive review of rotorcraft operations and certification.

In an NPRM issued March 13, 1985 (50 FR 10144), the FAA proposed to amend § 91.23 (now § 91.167) to reduce the fuel reserve requirement for helicopters from 45 minutes to 30 minutes, the ceiling requirement for helicopters from 2,000 feet to 1,000 feet, and the visibility requirement for helicopters from 3 miles to 1 mile. No changes were proposed to § 91.83 (now § 91.169). As the FAA stated in the preamble to the NPRM, the basis for the proposed reductions was that a helicopter has the unique ability to reduce airspeed safely on approach to as low as 40 knots, and is therefore provided reduced visibility minima in part 97. The proposal went on to say that because the helicopter, with its reduced minima, has a better probability of completing the flight to the planned destination it should be allowed a reduced fuel reserve. In the 1985 NPRM, the FAA also stated that it had gained sufficient experience with operations under SFAR No. 29 to conclude that reducing the required fuel reserve would not decrease the level of safety.

On November 7, 1986 (51 FR 40692), the FAA published a final rule which adopted the proposal under § 91.23 to reduce the fuel reserve. The FAA did not, however, adopt the proposal to reduce the ceiling and visibility minima because a report entitled "Weather Deterioration Models Applied to Alternate Airport Criteria (Report No. DOT/FAA/RD 81/92 (September 1981)) had stated that "any reduction in alternate airport requirements should be offset by limiting the duration of the flight for which the reduced requirements apply" (p. 4-1). The findings in that report, however, were preliminary, and in the 17 years that have passed since it was issued, the

FAA's experience with helicopter IFR flight plan filing criteria indicates that the preliminary concern for reduced helicopter ceiling and visibility minima was over emphasized.

In 1982, the United States Army adopted reduced IFR alternate airport weather planning minima and alternate airport selection criteria for both helicopters and airplanes. The Army's criteria of a ceiling 400 feet above the weather planning minimum required for the approach to be flown, and visibility one mile greater than the weather planning minimum required for the approach to be flown has been used for over 16 years and thousands of flight hours with no mishap associated with weather planning criteria. The U.S. Army's experience demonstrates that reducing helicopter ceiling and visibility minima for IFR flight planning results in a level of safety equivalent to the current rule and offers greater operational flexibility for helicopter operators.

In August 1993, a workshop conducted by the FAA with industry, called the Extremely Low Visibility Instrument Rotorcraft Approaches (ELVIRA) Workshop, resulted in a list of "Ten Most Wanted" changes (see "Extremely Low Visibility IFR Rotorcraft Approach (ELVIRA) Operational Concept Development, Final Report," Report No. DOT/FAA/RD-94/1.I. (March 1994)). The unprioritized list of 10 desired IFR system enhancements included "Rotorcraft Specific Minima" for determining the need for, and availability of, alternate airports for flight plan filing purposes (ELVIRA report, p. 3).

Since rotorcraft are for the most part range-limited, their destination airport and alternate airport will most likely be in the same air mass and consequently will have similar weather. In the ELVIRA final report (p. 34), the FAA noted that the current regulations result in a "severe penalty in the productivity of helicopters operating under IFR." In addition, the FAA observed that "with certain weather conditions it is often impossible for the helicopter operator to gain access to the current IFR system, while VFR flight is allowed. . . . [C]hanging this [the alternate airport minimums] to 400-1 for a [helicopter] precision approach and 600-1 for a [helicopter] non-precision approach procedure, will enable many more [helicopter] IFR operations to take place while maintaining the same level of safety" (pp. 34-35).

On February 23, 1995, Helicopter Association International (HAI) petitioned the FAA for an exemption

from § 91.169 (c)(1)(i), which provides that alternate airport minima for a precision approach are a ceiling of 600 feet and visibility of 2 statute miles. The petition asked the FAA to allow lower alternate airport weather minima for IFR flight planning.

On April 24, 1996, HAI filed an amendment to its petition for exemption from § 91.169 (c)(1)(i), proposing, in part, to limit operations under the requested exemption to those conducted by certain operators named in the amended petition. The stated purpose of this amendment was the further "accumulation of data to prove the operational safety of the use of such minimums." In addition, the FAA has received 13 other petitions requesting amendments to §§ 91.169 and 91.167 to allow helicopter operations with reduced alternate weather requirements.

The FAA's action on this NPRM responds to the petitions for exemption from HAI and others. With the publication of this NPRM, the FAA is closing the docket on HAI's petition for exemption, and on the petitions submitted by HAI and others for various amendments to §§ 91.169 and 91.167 and related regulations.

ARAC Working Group Recommendation

The Aviation Rulemaking Advisory Committee (ARAC) was established by the FAA to provide industry information and expertise during the rulemaking process. In October 1991, an IFR Fuel Reserve Working Group of the ARAC, General Aviation Operations Issues, was assigned the task to "evaluate the advantages and disadvantages of revising the fuel reserve requirements for flight under instrument flight rules" (56 FR 51744, Oct. 15, 1991). Later the working group also evaluated—(1) the advantages and disadvantages of revised precision and non-precision instrument approach minima and alternate weather minima, considering the operational capability of the helicopter to decelerate before and during arrival at the Decision Height or Minimum Descent Altitude, including circling approaches; and (2) whether or not this capability reduces risk and the probability of a missed approach and the need to proceed to an alternate and meet the resulting regulatory alternate fuel requirement. The working group, which consisted of representatives from helicopter associations, helicopter manufacturers, helicopter pilot associations, helicopter operators, and government agencies, met numerous times between January 1992 and October 1997. This proposed rule is based on ARAC's recommendation that

was submitted to the FAA in November 1997.

In their document, ARAC recommended that the FAA revise the weather minima used to determine whether carriage of additional fuel to reach an alternate airport is needed when flying in IFR conditions. Specifically, ARAC suggested revising paragraph (b)(2) of § 91.167—Fuel requirements for flight in IFR conditions, to state that: " * * * weather reports or prevailing weather forecast or combination of them indicate * * * for helicopters, at the estimated time of arrival, the ceiling will be 1,000 feet above the airport elevation or 400 feet above the lowest approach minima, whichever is higher; and * * * at the estimated time of arrival, the visibility will be at least 2 statute miles." The ARAC's suggested revisions would create different ceiling and visibility criteria for helicopters (as opposed to those for airplanes), and would also change the requirement that those ceiling and visibility criteria be in effect for at least 1 hour before and 1 hour after the estimated time of arrival.

ARAC also recommended that IFR flight plan requirements for helicopters be amended by revising the alternate airport weather planning requirements, and weather minima necessary when designating an alternate airport on an IFR flight plan. ARAC suggested that the FAA revise paragraph (b) of § 91.169—IFR flight plan: Information required, to state that, if 14 CFR part 97 prescribes " . . . a standard instrument approach procedure for the first airport of intended landing and the weather reports or prevailing weather forecast or combination of them indicate . . . for helicopters, at the estimated time of arrival, the ceiling will be at least 1,000 feet above the airport or heliport elevation or 400 feet above the lowest approach minima, whichever is higher; and . . . at the estimated time of arrival, the visibility will be at least 2 statute miles."

Under § 91.169 (c), ARAC again suggested creating different IFR alternate weather minima for helicopters performing precision and nonprecision approaches (as opposed to those for airplanes). The new criteria would apply when it would be necessary to include an alternate airport in an IFR flight plan. Ceiling and visibility conditions at the alternate airport would be for "current prevailing weather forecasts . . . at the estimated time of arrival" (when no instrument approach procedure has been specified in 14 CFR part 97 for an alternate airport). The helicopter minima recommended by ARAC are as follows.

For a "precision approach procedure . . . for helicopters, [c]eiling 400 feet and visibility 1 statute mile" and for a "nonprecision approach procedure . . . for helicopters, [c]eiling 600 feet and visibility 1 statute mile."

The FAA agrees with most of ARAC's recommendations, except the elimination of the requirement under § 91.167 (b)(2) and 91.169 (b) that weather report and forecast data be in effect for 1 hour after the estimated time of arrival. The FAA is proposing to keep that requirement. See "Discussion of Proposed Rule" below

II. Discussion of the Proposed Rule

Based largely on ARAC's recommendations, the FAA proposes to amend the general operating rules pertaining to flight plan requirements for flight by helicopters under IFR by revising the: (1) alternate airport weather planning requirements; (2) weather minima necessary to designate an airport as an alternate on an IFR flight plan; and (3) fuel requirements for helicopter flight into IFR conditions.

The proposal reflects the differences in operational characteristics between airplanes and helicopters by maintaining the current requirements for airplanes while reducing the forecast ceiling and visibility minima for helicopters. Under the FAA's proposed § 91.167 (b), fuel requirements for helicopter flights to an alternate airport in IFR conditions would not apply to helicopters if weather reports or forecasts, or any combination of them, indicate that, at the estimated time of arrival and for 1 hour after estimated time of arrival at the intended destination, the ceiling will be 1,000 feet above the airport elevation or 400 feet above the lowest approach minima and the visibility will be at least 2 statute miles. As discussed above (under "ARAC Working Group Recommendation"), in its November 1997 submission to the FAA, ARAC recommended that the § 91.167 (b)(2) weather criteria be applicable at the estimated time of arrival. The FAA, however, proposes that the weather criteria be applicable at the estimated time of arrival and for 1 hour after the estimated time of arrival. Because weather can change suddenly and unexpectedly, the FAA believes that this extra margin of safety is necessary. The FAA specifically requests public comment on whether this requirement would be reasonable.

The FAA also proposes to revise the requirements for helicopter filing IFR flight plans under § 91.169 (b) so that an alternate airport designation would not be required on an IFR flight plan for

helicopters using standard instrument approach procedures if weather reports or forecasts, or any combination of them, indicate that, at the estimated time of arrival and for 1 hour after the estimated time of arrival at the intended destination, the ceiling will be at least 1,000 feet above the airport elevation, or 400 feet above the lowest approach minima, whichever is higher, and the visibility will be at least 2 statute miles. As with the amendment of § 91.167 (b)(2) (discussed above), ARAC recommended that the § 91.169 (b) weather criteria be applicable at the estimated time of arrival. However, the FAA is proposing that weather criteria be applicable at the estimated time of arrival and for 1 hour after the estimated time of arrival. Again, the FAA believes that this extra margin of safety is necessary, but specifically requests public comment on whether this requirement would be reasonable.

In addition, the proposed rule would revise § 91.169(c) to reduce the alternate airport weather minima for helicopter IFR flight plan filing purposes as follows: (1) for precision approach procedures, a ceiling of 400 feet and visibility of 1 statute mile, but never lower than the published minima for the approach to be flown; and (2) for non-precision approach procedures, a ceiling of 600 feet and visibility of 1 statute mile, but never lower than the published minima for the approach to be flown.

The FAA is also proposing to remove "Special Federal Aviation Regulations (SFAR) No. 29-4—Limited IFR Operations of Rotorcraft" from 14 CFR parts 21 and 91, and notes referencing it from 14 CFR parts 27 and 29. This action is being taken because the SFAR does not include the proposed provisions for alternate airport weather planning minima and weather minimum necessary to designate an airport as an alternate; therefore, if this proposal is adopted as final, SFAR No. 29-4 would no longer be necessary. The FAA has not issued any approvals under SFAR No. 29-4 in recent years and believes that all approvals previously issued have either been surrendered or revoked, or have been terminated. While the FAA does not know of any operators that would be adversely impacted by the removal of SFAR No. 29-4, the agency specifically requests comments from operators that believe they would be.

Aside from the substantive amendments described above, the FAA is also proposing to issue these amendments in clear, easy to follow language. This is discussed below under

"III. Plain Language in Government Writing."

III. Plain Language in Government Writing

In response to the White House Commission on Aviation Safety and Security's recommendation that the FAA's regulations should be simplified and, as appropriate, rewritten in plain English (Recommendation 1.4; Final Report to President Clinton, February 12, 1997), as well as the June 1, 1998, Presidential Memorandum on "Plain Language in Government Writing," the FAA has attempted to make the proposed regulatory text for §§ 91.167 and 91.169 as easy to follow as possible. Under § 91.167, paragraph (a) does not contain any new requirements, but would be clarified by moving the exception clause to paragraph (a)(2), which it modifies. Section 91.169 (a)(2) does not contain any new requirements, but would be clarified by moving the exception clause to the beginning of the sentence to make it consistent with § 91.167 (a)(2). In addition, the FAA has made one minor clarification to the airplane flight planning provisions in §§ 91.167(b)(2) and 91.169(b) by adding the word "for" before the phrase "1 hour after" to make it consistent with the helicopter flight planning provisions.

The FAA is setting forth the proposed revisions to §§ 91.167 (b) and 91.169 (b) and (c) in two formats, tabular and narrative (each containing the same proposed new requirements). The FAA specifically requests comments on whether the amendments set forth in this NPRM are in clear language, and whether the tabular or narrative format in § 91.167 (b) and 91.169 (b) and (c) is preferable. Only one format will be adopted at the final rule stage.

IV. Economic Evaluation Summary

This proposed rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, is not subject to review by the Office of Management and Budget. The proposed rule is not considered significant under the regulatory policies and procedures of the Department of Transportation (44 FR 11034; Feb. 26, 1979).

Both the executive and legislative branches of government recognize that economic considerations are an important factor in establishing regulations. Executive Order 12866, signed by President Clinton on September 30, 1993, requires Federal agencies to assess both the costs and benefits of proposed regulations and, recognizing that some costs and benefits

are difficult to quantify, propose or adopt regulations only upon a reasoned determination that the benefits of each regulation justify its costs. In addition, the Regulatory Flexibility Act of 1980 requires Federal agencies to determine whether or not proposed regulations are expected to have a significant economic impact on a substantial number of small entities, and, if so, examine feasible regulatory alternatives to minimize the economic burden on small entities. Finally, the Office of Management and Budget directs agencies to assess the effects of proposed regulations on international trade.

This section of the preamble summarizes the FAA's economic and trade analyses, findings, and determinations in response to these requirements. The complete economic and trade analyses are contained in the docket (see "Addresses" above).

Benefits

There are some non-quantifiable benefits that can be attributed to this proposed rulemaking, such as the reduction in the level of aircraft noise experienced by individuals on the ground when helicopters fly at higher altitudes. These benefits are difficult to accurately measure, and are discussed in qualitative terms. Other benefits are more quantifiable and are derived from the reduction of the number of fatal and serious accidents that occur in marginal weather conditions. The estimated reduction in the number of accidents is due to the increased level of safety afforded pilots that fly IFR. These benefits are classified as quantitative.

Qualitative Benefits

Due to the lack of feasible alternatives to VFR, during periods of marginal or inclement weather conditions, a helicopter operator often will forsake the IFR system because he or she is unable to meet the flight plan requirements and criteria for specifying an alternate airport. As such, the helicopter operator will fly either VFR or Special VFR at lower altitudes. By flying at lower altitudes, third party costs (increased level of aircraft noise), are experienced by individuals on the ground.

All noise has the potential to annoy because of interference with speech, sleep, work, or other activities; however, aircraft noise is a function of aircraft altitude, and noise or sound energy can be reduced by increasing the flight altitude. Therefore, by providing the opportunity to increase the altitude of a helicopter's flight during IMC (instrument meteorological conditions), the proposed rule would help to reduce

the sound energy on the ground generated by that helicopter. For example, if a helicopter flying VFR at 250 feet above ground level (AGL) in marginal weather conditions is able to fly IFR at 4,000 feet AGL in the same marginal weather conditions, the reduction in sound energy is 24 dB, which represents a decrease to less than one-hundredth the level of sound intensity experienced by third parties on the ground.

Another benefit of this NPRM that is difficult to quantify is reducing the opportunity cost of upper management time. Opportunity cost is a forward-looking view of costs that are forgone by not putting a firm's resources to its highest use. Due to the high level of concern many companies have regarding the safety of their senior executives, the safe operation of their corporate helicopter receives a high priority. As such, during periods of marginal or adverse weather conditions most corporate operations are canceled rather than attempt to fly VFR under those conditions. A portion of the opportunity cost can be measured by the lost productivity associated with the extra time involved by senior executives using alternate forms of transportation, such as automobiles. With the average annual chief executive compensation at \$2.3 million, an hour delay could amount to as much as \$1,100, not including the salaries of other senior executives traveling with the chief executive, or the cost of the helicopter and pilot sitting idle due to marginal or adverse weather conditions. By enabling more helicopter pilots to operate under IFR in marginal weather conditions, these opportunity costs could be avoided.

Quantitative Benefits

The quantitative benefits of this proposed rulemaking are derived from a potential reduction in weather-related accidents. Weather-related accidents are a common, serious type of accident experienced by helicopter operators, but this type of accident can be prevented by enhanced helicopter operator access into the IFR system. The FAA believes that the proposed rule will result in a level of safety equivalent to the current rule and offer greater operational flexibility for helicopter operators. The FAA bases this on the U.S. Army's experience of no mishaps over the past 16 years associated with weather planning criteria resulting from reduced helicopter ceiling and visibility minima for IFR flight planning.

In this analysis, the FAA used data involving helicopter accidents where weather was a cause or factor over a 10-

year period from 1987 to 1996. The data used was obtained from the National Transportation Safety Board (NTSB) database. The most recent accidents that occurred in 1997 are still under review, and thus no data from 1997 is used in this analysis.

Since 1987, there have been a total of 275 helicopter accidents where weather was a cause or factor of the accident. The total includes 202 accidents involving VFR flight without a flight plan filed, 68 accidents where a VFR flight plan was filed, and five accidents where a IFR flight plan was filed. The 202 accidents involving VFR flight is approximately 40 times greater than the five accidents that occurred under a IFR flight plan. In addition, the 68 accidents where VFR flight plans were filed is approximately 14 times greater than the five in IFR operation. When the 202 accidents are added to the 68 accidents, the result is a total of 270 accidents, which represents approximately 98 percent of all the accidents that occurred when weather was a cause or factor. These statistics suggest the potential safety benefits of flying IFR in IMC.

Of all helicopter flights flown, approximately 10 percent are performed under a IFR flight plan. As such, the number of accidents flying IFR would be expected to be approximately 10 percent of the total accidents, or 28 accidents. However, of the 275 helicopter accidents where weather was a cause or factor of the accident, instead of 28 accidents, only five accidents occurred under a IFR flight plan. Because the actual number of accidents (five) is approximately 18 percent of the expected number of accidents (28), this information suggests that IFR flight is safer than VFR flight when marginal weather conditions are present.

When the fatalities sustained while flying with no flight plan (74) are added to the fatalities sustained while flying with a VFR flight plan (63), the result is 137 fatal injuries. That represents a fatality rate more than five times the 27 fatal injuries sustained under a IFR flight plan. Similarly, when serious injuries sustained while flying with no flight plan (32) are added to the serious injuries sustained while flying with a VFR flight plan (24), the result is 56, compared to only one serious injury sustained in IFR flight. In aggregate, the fatal and serious injuries that occurred when no IFR flight plan was filed is approximately seven times those that occurred under a IFR flight plan. The FAA is aware that even though weather was a cause or contributing factor in all of these accidents, this proposed rulemaking would not have prevented

all of these accidents or injuries; however, the data suggest that IFR flight is safer than VFR flight when marginal weather conditions are present.

In 16 of the 270 accidents involving VFR flight, in addition to weather being a cause or contributing factor, the pilot-in-command had instrument ratings for helicopters, or for helicopters and airplanes. Although the weather minima for the destination airport is not known, the FAA believes that with the revised weather minima provided by the proposal, the pilots with instrument ratings could have taken advantage of positive air traffic control services (such as obstacle avoidance) and flown IFR. However, due to the uncertainty regarding the weather at the destination airports, the FAA recognizes that all 16 of these accidents may not have been avoided. Therefore, the FAA applied the same percentage described above regarding the expected and actual accidents under IFR ($5/28 \approx 18\%$) where weather was a cause or factor of the accident and determined that three of the 16 accidents ($16 \times 18\% \approx 3$) would not have been avoided if this proposed rulemaking had been in effect.

To determine the potential benefits that would result from this proposed rule, the FAA estimated the average costs associated with all the injuries and fatalities sustained in the 16 accidents involving VFR flight where the pilot-in-command had instrument ratings for helicopters. A critical economic value of \$2.7 million and \$518,000 was applied to each human fatality and serious injury, respectively. This computation resulted in an estimate of approximately \$53 million in casualty costs. Also, the value of the destroyed aircraft was estimated to be \$7 million. If this rulemaking helps prevent 80 percent of these injuries and fatalities that resulted from 16 accidents, the expected potential safety benefits over the next 10 years would be approximately \$48 million (\$34 million, discounted).

Costs

The proposed rule would not impose any additional equipment, training, or other cost to the aviation industry. Therefore, the FAA believes there is no apparent compliance cost associated with the proposed rule. However, the FAA solicits comments regarding the plausibility and extent of the adverse impacts on operators from implementation of the proposed rule.

Comparison of Costs and Benefits

The NPRM would not place any additional requirements on the aviation industry. Therefore, there are no compliance costs associated with the

proposed rule. Qualitative benefits from the proposed rule would come from reducing the level of aircraft noise experienced by individuals on the ground and from cost savings associated with reducing transportation time for high-level corporate executives. The quantitative benefits come from a potential reduction in accidents by enabling more helicopter pilots to operate under IFR in marginal weather conditions. Over the next 10 years, the estimated safety benefit of the proposed rule could be \$48 million, or \$34 million, present value. Therefore, the FAA has determined that the proposed rule is cost beneficial.

V. Initial Regulatory Flexibility Assessment

The Regulatory Flexibility Act of 1980 (RFA), as amended, was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by Government regulations. The RFA requires that whenever an agency publishes a general notice of proposed rulemaking, an initial regulatory flexibility analysis identifying the economic impact on small entities, and considering alternatives that may lessen those impacts must be conducted if the proposed rule would have a significant economic impact on a substantial number of small entities.

This proposed rule will impact entities operating under 14 CFR part 91. The FAA believes there is no compliance cost associated with the proposed rule. Therefore, the FAA certifies that this proposed rule will not have a significant economic impact on a substantial number of small entities; however, the FAA solicits comments from operators that feel they would be negatively impacted from implementation of the proposed rule.

VI. International Trade Impact Statement

This proposed rule is not expected to impose a competitive disadvantage to either U.S. air carriers doing business abroad or foreign air carriers doing business in the United States. This assessment is based on the fact that this proposed rule would not impose additional costs on either U.S. or foreign air carriers. This proposal would have no effect on the sale of foreign aviation products or services in the United States, nor would it affect the sale of United States aviation products or services in foreign countries.

VII. Unfunded Mandates Reform Act Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), enacted as Pub. L. 104-4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate in a proposed or final agency rule that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more (adjusted annually for inflation) in any one year. Section 204(a) of the Act, 2 U.S.C. 1534(a), requires the Federal agency to develop an effective process to permit timely input by elected officers (or their designees) of State, local, and tribal governments on a proposed "significant intergovernmental mandate." A "significant intergovernmental mandate" under the Act is any provision in a Federal agency regulation that would impose an enforceable duty upon State, local, and tribal governments, in the aggregate, of \$100 million (adjusted annually for inflation) in any one year. Section 203 of the Act, 2 U.S.C. 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity to provide input in the development of regulatory proposals.

This proposed rule does not contain any Federal intergovernmental or private sector mandate; therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

VIII. Federalism Implications

The proposed regulations would not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among various levels of government. Thus, in accordance with Executive Order 12612, it is determined that this proposed regulation would not have federalism implications warranting the preparation of a Federalism Assessment.

IX. Environmental Analysis

FAA Order 1050.1D defines FAA actions that may be categorically excluded from preparation of a National Environmental Policy Act (NEPA) environmental assessment (EA) or

environmental impact statement (EIS). In accordance with FAA Order 1050.1D, Appendix 4 paragraph 4(j), regulations, standards and exemptions (excluding those, which if implemented may cause a significant impact on the human environment) qualify for a categorical exclusion. The FAA proposes that this rule qualifies for a categorical exclusion because no significant impacts to the environment are expected to result from its finalization or implementation. In accordance with FAA Order 1050.1D, paragraph 32, the FAA proposes that there are no extraordinary circumstances warranting preparation of an environmental assessment for this proposed rule.

It is expected that the proposed rule would increase the safety, but not change the number of helicopter operations conducted in the United States. In particular, changes in instrument flight rules (IFR) applied to helicopter flight requirements would result in helicopters flying at higher altitudes during instrument meteorological conditions (IMC) with less associated ground level noise. During visual meteorological conditions, helicopters are expected to continue to operate as they do currently under visual flight rules. These changes in operating rules pertaining to flight plans and fuel for flights by helicopters operating under IFR are not expected to result in any adverse environmental effects since there should be no adverse change in the noise levels currently experienced in the human and natural environment, and no adverse additional impacts on biological, cultural or aesthetic resources. Introduction of exotic species is not expected to be influenced by the proposed rule, and neither would air quality, freshwater supplies nor the practice of traditional belief systems in natural environments.

Comments relating to the proposed categorical exclusion or to any environmental impacts that might result from adopting this rule are invited.

X. Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3507 (d)), there are no requirements for information collection associated with this proposed rule.

List of Subjects

14 CFR Part 21

Aircraft, Aviation safety, Exports, Imports, Reporting and recordkeeping requirements.

14 CFR Part 27

Aircraft, Aviation safety.

14 CFR Part 29

Aircraft, Aviation safety.

14 CFR Part 91

Aircraft, Airports, Aviation safety.

The Proposed Amendment

In consideration of the foregoing, the FAA proposes to amend parts 21, 27, 29, and 91 of the Federal Aviation Regulations (14 CFR parts 21, 27, 29, and 91) as follows:

PART 21—CERTIFICATION PROCEDURES FOR PRODUCTS AND PARTS

1. The authority citation for part 21 continues to read as follows:

Authority: 42 U.S.C. 7572; 49 U.S.C. 106(g), 40105, 40113, 44701–44702, 44709, 44711, 44713, 44715, 45303.

SFAR No. 29–4 [Removed]

2. Part 21 is amended by removing Special Federal Aviation Regulation (SFAR) No. 29–4—Limited IFR Operations of Rotorcraft.

PART 27—AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT

3. The authority citation for Part 27 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701–44702, 44704.

SFAR No. 29–4—Editorial note [Removed]

4. Part 27 is amended by removing the Editorial Note for Special Federal Aviation Regulation No. 29–4.

PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT

5. The authority citation for Part 29 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701–44702, 44704.

SFAR No. 29–4—Editorial note [Removed]

6. Part 29 is amended by removing the Editorial Note for Special Federal Aviation Regulation (SFAR) No. 29–4.

PART 91—GENERAL OPERATING AND FLIGHT RULES

7. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 106(g), 1156, 40103, 40113, 40120, 44101, 44111, 44701, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506–46507, 47122, 47508, 47528–47531, articles 12 and 29 of the Convention on International Civil Aviation (61 stat. 1180).

SFAR No. 29–4 [Removed]

8. Part 91 is amended by removing Special Federal Aviation Regulation (SFAR) No. 29–4.

Section 91.167 is revised to read as set forth below. The revision is displayed in two formats (all-narrative and partially tabular), each containing the same information, so the public can comment on which format is preferable.

Option 1—All-Narrative Format.**§ 91.167 Fuel requirements for flight in IFR conditions.**

(a) No person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to—

- (1) Complete the flight to the first airport of intended landing;
- (2) Except as provided in paragraph (b) of this section, fly from that airport to the alternate airport; and
- (3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if part 97 of this chapter prescribes a standard instrument approach procedure for the first airport of intended landing, and the weather reports or forecasts, or any combination of them, indicate the following:

(1) *For airplanes.* For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

(2) *For helicopters.* At the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling will be 1,000 feet above the airport elevation, or 400 feet above the lowest approach minima, whichever is higher, and the visibility will be at least 2 statute miles.

Option 2—Partially Tabular Format**§ 91.167 Fuel requirements for flight in IFR conditions.**

(a) No person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to—

- (1) Complete the flight to the first airport of intended landing;
- (2) Except as provided in paragraph (b) of this section, fly from that airport to the alternate airport; and
- (3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if part 97 of this chapter prescribes a standard instrument approach procedure for the first airport of intended landing and the weather is as described in the following table:

The weather reports and/or prevailing weather forecast	Indicate that the ceiling will be	And the visibility will be
For airplanes: for at least one hour before and for one hour after the ETA.	At least 2000 feet above airport elevation	At least 3 statute miles.
For helicopters: at the ETA and for one hour after the ETA.	At least 1000 feet above airport elevation, or 400 feet above the lowest approach minima, whichever is higher.	At least 2 statute miles.

10. Section 91.169 is amended by revising paragraphs (a), (b), and (c) to read as set forth below. The revisions are displayed in two formats (all-narrative and partially tabular), each containing the same information, so the public can comment on which format is preferable.

Option 1—All-Narrative Format**§ 91.169 IFR flight plan: Information required.**

(a) *Information required.* Unless otherwise authorized by ATC, each person filing an IFR flight plan shall include in it the following information:

- (1) Information required under § 91.153(a) of this part;
- (2) Except as provided in paragraph (b) of this section, an alternate airport.

(b) Paragraph (a)(2) of this section does not apply if part 97 of this chapter prescribes a standard instrument approach procedure for the first airport of intended landing and the weather reports or forecasts, or any combination of them, indicate the following:

(1) *For airplanes.* For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport

elevation and the visibility will be at least 3 statute miles.

(2) *For helicopters.* At the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling will be at least 1,000 feet above the airport elevation, or 400 feet above the lowest approach minima, whichever is higher, and the visibility will be at least 2 statute miles.

(c) *IFR alternate airport weather minima.* Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless current weather forecasts indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following alternate weather minima:

(1) If an instrument approach procedure has been published in part 97 of this chapter for that airport, the alternate airport minima specified in that procedure, or

(2) If an instrument approach procedure has been published in part 97 of this chapter for that airport, but that procedure contains no alternate airport weather minima, the following apply:

(i) For airplanes using—

(A) *A precision approach procedure.* The ceiling will be 600 feet and the visibility will be 2 statute miles.

(B) *A nonprecision approach procedure.* The ceiling will be 800 feet and the visibility will be 2 statute miles.

(ii) For helicopters using—

(A) *A precision approach procedure.* The ceiling will be 400 feet and the visibility will be 1 statute mile, but never lower than the published minima for the approach to be flown.

(B) *A nonprecision approach procedure.* The ceiling will be 600 feet and the visibility will be 1 statute mile, but never lower than the published minima for the approach to be flown.

(3) If no instrument approach procedure has been published in part 97

of this chapter for the alternate airport, the ceiling and visibility minima are those allowing descent from the MEA, approach, and landing under basic VFR.

* * * * *

Option 2—Partially Tabular Format

§ 91.169 IFR flight plan: Information required.

(a) *Information required.* Unless otherwise authorized by ATC, each person filing an IFR flight plan shall include in it the following information:

(1) Information required under § 91.153(a) of this part;

(2) Except as provided in paragraph (b) of this section, an alternate airport.

(b) Paragraph (a) (2) of this section does not apply if part 97 of this chapter prescribes a standard instrument approach procedure for the first airport of intended landing and the weather is as described in the following table:

The weather reports and/or prevailing weather forecast	Indicate that the ceiling will be	And the visibility will be
For airplanes: for at least one hour before and for one hour after the ETA.	At least 2000 feet above airport elevation	At least 3 statute miles.
For helicopters: at the ETA and for one hour after the ETA.	At least 1000 feet above airport elevation, or 400 feet above the lowest approach minima, whichever is higher.	At least 2 statute miles.

(c) Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless current weather forecasts indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be as described in the following table:

The ceiling will be	And the visibility will be
If the instrument approach procedure in part 97 contains alternate airport minima	
For airplanes and helicopters: The alternate airport minimum specified in that procedure	The alternate airport minimum specified in that procedure.
If the instrument approach procedure in part 97 contains no alternate airport minima	
For an airplane precision approach: 600 feet	2 statute miles.
For an airplane non-precision approach: 800 feet	2 statute miles.
For a helicopter precision approach: 400 feet, but never lower than the published minima for the approach	1 statute mile, but never lower than the published minima for the approach.
For a helicopter non-precision approach: 600 feet, but never lower than the published minima for the approach	1 statute mile, but never lower than the published minima for the approach.
If there is no instrument approach procedure in part 97 for the airport	
The minima allowing descent from MEA, approach and landing under basic VFR	

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Issued in Washington, DC, on August 28, 1998.

Richard O. Gordon,

Acting Director, Flight Standards Service.

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